

Nalco Docket No.: 7724-NES
Customer No. 000049459

OFFICIAL

CLAIMS

1. (original) An alkoxyated alkylphenol-formaldehyde-diamine polymer prepared by reacting 1 molar equivalent of one or more diamines, 1 to about 10 molar equivalents of one or more alkylphenols and about 2 to about 14 molar equivalents of formaldehyde to form an alkylphenol-formaldehyde-diamine polymer and then reacting the alkylphenol-formaldehyde-diamine polymer with about 5 to about 3,500 molar equivalents of one or more alkylene oxides.
2. (original) The alkoxyated alkylphenol-formaldehyde-diamine polymer of claim 1 wherein the alkylene oxides comprise ethylene oxide and propylene oxide.
3. (original) The alkoxyated alkylphenol-formaldehyde-diamine polymer of claim 2 wherein the ethylene oxide and propylene oxide are added in block fashion.
4. (original) The alkoxyated alkylphenol-formaldehyde-diamine polymer of claim 3 wherein the ethylene oxide and propylene oxide are added in the sequence ethylene oxide-propylene oxide.
5. (original) The alkoxyated alkylphenol-formaldehyde-diamine polymer of claim 3 wherein the ethylene oxide and propylene oxide are added in the sequence ethylene oxide-propylene oxide-ethylene oxide.
6. (currently amended) The alkoxyated alkylphenol-formaldehyde-diamine polymer of claim 1 wherein the diamines are selected from the group consisting of ethylenediamine, triethylenetetramine triethylenetetramine, tetraethylenepentamine, pentaethylenhexamine, aminoethylpiperazine, 1,2-diaminocyclohexane, *o*-phenylenediamine and *p*-phenylenediamine.

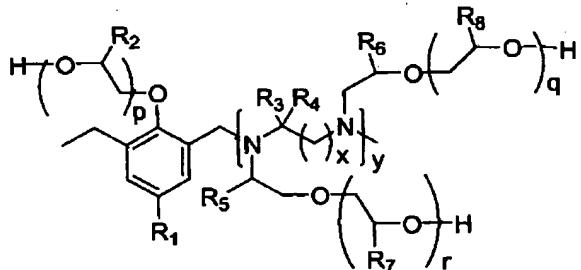
Nalco Docket No.: 7724-NES
 Customer No. 000049459

OFFICIAL

7. (original) The alkoxylated alkylphenol-formaldehyde-diamine polymer of claim 3 wherein the alkylphenol-formaldehyde-diamine polymer is reacted with about 650 to about 800 molar equivalents of alkylene oxide.

8. (previously presented) The alkoxylated alkylphenol-formaldehyde-diamine polymer of claim 3 prepared by reacting about 1 molar equivalent of one or more alkylphenols, about 2 to about 7 molar equivalents of formaldehyde and about 1 molar equivalent of one or more diamines to form an alkylphenol-formaldehyde-diamine polymer and then reacting the alkylphenol-formaldehyde-diamine polymer with about 650 to about 800 molar equivalents of ethylene oxide and propylene oxide.

10. (original) The alkoxylated alkylphenol-formaldehyde-diamine polymer of claim 1 comprising 1 to about 12 repeating units of formula



wherein R₁ is C₁-C₁₈ alkyl; R₂, R₅, R₆, R₇ and R₈ are independently selected at each occurrence from H and CH₃; R₃ and R₄ are independently selected at each occurrence from H, C₁-C₃ alkyl, aryl, hydroxy, alkoxy and halide; x is 1 to about 11; y is 1 to about 5; and p, q and r are independently about 5 to about 860.

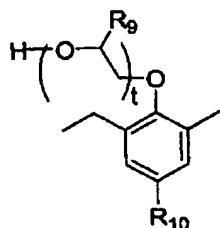
10. (original) The alkoxylated alkylphenol-formaldehyde-diamine polymer of claim 9 wherein R₃ and R₄ are H.

Nalco Docket No.: 7724-NES
Customer No. 000049459

OFFICIAL

11. (original) The alkoxylated alkylphenol-formaldehyde-diamine polymer of claim 9
wherein R₁ is C₅-C₁₂ alkyl.

12. (original) The alkoxylated alkylphenol-formaldehyde-diamine polymer of claim 9
further comprising 1 to about 24 repeating units of formula



wherein R₉ is independently selected at each occurrence from H and CH₃, R₁₀ is C₁-C₁₈ alkyl and t is 0 to about 830.

13. (original) A demulsifier composition for resolving water-in-oil emulsions comprising one or more alkoxylated alkylphenol-formaldehyde-diamine polymers according to claim 1.

14. (original) A method of resolving a water-in-oil emulsion comprising adding to the emulsion an effective demulsifying amount of one or more alkoxylated alkylphenol-formaldehyde-diamine polymers according to claim 1.

15. (original) The method of claim 14 wherein the water-in-oil emulsion is a crude oil emulsion.

16. (original) The method of claim 14 wherein the crude oil emulsion is a refinery desalting emulsion.

17. (original) The method of claim 14 wherein the crude oil emulsion is a crude oil production emulsion.